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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/636,078	08/07/2003	Gregory S. Helwig	25334A	9843

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OWENS CORNING
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EXAMINER	
CHRISS, JENNIFER A	
ART UNIT	**PAPER NUMBER**
1771	
MAIL DATE	**DELIVERY MODE**
05/16/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/636,078	HELWIG, GREGORY S.	
	Examiner	Art Unit	
	Jennifer A. Chriss	1771	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 February 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-25 and 37-50* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-25,37-50* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. The Applicant's Amendments and Accompanying Remarks, filed February 24, 2007, have been entered and have been carefully considered. Claims 49 – 50 are added and claims 1, 3 – 25, 37 – 48 are pending. In view of Applicant's argument that Chenoweth et al. does not teach microspheres, the Examiner has withdrawn the rejection as detailed in paragraph 2 of the Office Action dated December 8, 2006. Additionally, the Examiner has revised the rejection as detailed in paragraph 3 of the Office Action dated December 8, 2006 in response to Applicant's arguments. The invention as currently claimed is not found to be patentable for reasons herein below.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 102/103

3. Claims 1, 3 - 7, 9 - 17, 20 – 21, 24 - 25, 37 – 43 and 47 – 48 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Chenoweth et al. (US 4,889,764).

Chenoweth et al. is directed to a non-woven matrix of glass and synthetic fibers having a rigid but resilient product having good strength and insulating characteristics (Abstract).

As to claims 1, 39 and 47, Chenoweth et al. disclose a nonwoven matrix of mineral fibers (glass fibers) and synthetic fibers. The synthetic fibers are of two types: first, solid or *hollow* homogeneous synthetic fibers such as *polyester*, rayon, acrylic, vinyl, *nylon*, Kevlar®, or similar synthetic materials. The second type of fibers is bi-component core and sheath fibers of materials, typically polyesters, having distinct melting points. The bicomponent synthetic fibers include an outer low melting temperature sheath and a higher melting temperature core. (Abstract; Col. 2, lines 51-60) The Examiner equates the glass fibers and the first (crimped) synthetic fibers to the presently claimed structural fibers, the crimped synthetic fibers further equated to the irregularly shaped fibers. The bi-component fibers meeting the claimed bi-component fibers of the present invention. Chenoweth et al. teach that the core 18 is fully surrounded by a sheath 20 of low melt temperature copolymer polyester that is at least about 100 degrees lower than the melting/bonding temperature of the core 18 (Col. 5, lines 18-30).

As to claim 3, Chenoweth et al. teach that the glass fibers have diameters of three to ten microns. (Col. 2, lines 67-68; Col. 4, lines 42-43) and the synthetic, second fibers 14, range from 5 to 15 denier and one to four inches in length, therefore, providing more loft to the product. (Col. 5, lines 1-5)

As to claims 4 and 48, Chenoweth et al. teach that the fibers 14 may be either straight or *crimped*, the crimped providing more loft and less density to the final product in comparison to the straight fibers.

As to claim 5, Chenoweth et al. teach that the fibers 14 can comprise polyester (column 4, lines 50 – 60).

As to claim 6, Chenoweth et al. teach that the fibers 14 can comprise nylon (column 4, lines 50 – 60).

As to claims 7 and 40, Chenoweth et al. teach that the fibers 14 may be crimped (column 5, lines 1 – 15).

As to claims 9, 38 and 41, Chenoweth et al. teach that the nonwoven matrix may comprise mineral fibers such as glass fibers (column 4, lines 30 – 40).

As to claim 10, Chenoweth et al. teach that the glass fibers have diameters of three to ten microns. (Col. 2, lines 67-68; Col. 4, lines 42-43)

As to claim 11, Chenoweth et al. teach that the fibers 14 can comprise polyester (column 4, lines 50 – 60).

As to claim 12, Chenoweth et al. teach that the synthetic, second fibers 14, range from 5 to 15 denier and one to four inches in length, therefore, providing more loft to the product. (Col. 5, lines 1-5)

As to claim 13, Chenoweth et al. teach that the homogenous second fibers 14 can comprise DACRON polyester (column 4, lines 50 – 65), which is known in the art to be polyethylene terephathalate and can have a length of ¼ - 4 inches (cut staple) (column 4, lines 65 – 69).

As to claim 14, Chenoweth et al. teach that the second homogenous fibers 14 are present in the amount of 3 – 30% by weight.

As to claim 15, Chenoweth et al. teach that the core comprises DACRON polyester (column 5, lines 20 – 35), which is known in the art to be polyethylene terephthalate.

As to claim 16, Chenoweth et al. teach that the sheath comprises 40% of the sheath-core fiber (column 5, lines 30 – 35), therefore, the core must comprise 60%.

As to claims 17 and 42, Chenoweth et al. teach that the core is a low melt temperature copolymer polyester (column 5, lines 25 – 30).

As to claim 20, Chenoweth et al. teach that the core 18 is fully surrounded by a sheath 20 of low melt temperature copolymer polyester that is at least about 100 degrees lower than the melting/bonding temperature of the core 18 (Col. 5, lines 18-30).

As to claim 21, Chenoweth et al. teach the use of conventional virgin rotary spun, fiberized glass fibers (column 4, lines 30 – 40) and the core is a low melt temperature copolymer polyester (column 5, lines 25 – 30).

As to claim 24, Chenoweth et al. teach the claimed limitations above. It should be noted that a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

As to claim 25, Chenoweth et al. teach that the non-woven fibrous product can be complexly curved (column 1, lines 15 – 25).

As to claims 37 and 43, Chenoweth et al. teach that the fibers 14 can be hollow (column 5, lines 8 – 13).

Although Chenoweth et al. does not explicitly teach the claimed melting point of the irregularly shaped fibers being significantly higher than the outer polymer annulus it is reasonable to presume that this is inherent to materials taught by Chenoweth et al. Support for said presumption is found in the use of like materials (i.e. among the materials disclosed for fibers 14 are aramids such as Kevlar® and Nomex®; these materials are heat and flame resistant and do not have a defined melting point, instead they decompose or carbonize at temperatures between 800°F -900°F. Evidence that fibers 14 do not melt while the sheath of the bicomponent fibers has melted is in Figures 3-4). The burden is upon Applicant to prove otherwise. *In re Fitzgerald* 205 USPQ 594. In addition, the presently claimed property of having irregularly shaped fibers with a melting point significantly higher than the outer polymer annulus would obviously have been present one the Chenoweth et al. product is provided. Note *In re Best*, 195 USPQ at 433, footnote 4 (CCPA 1977).

Claim Rejections - 35 USC § 103

4. Claims 8, 44 - 46 and 49 – 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chenoweth et al. (US 4,889,764) in view of McGregor et al. (US 5,571,592).

Chenoweth et al. teach a non-woven matrix of glass and synthetic fibers having

good strength and insulating characteristics (Abstract). Chenoweth et al. discloses a nonwoven matrix of mineral fibers (glass fibers) and synthetic fibers. The synthetic fibers are of two types: first, solid or *hollow* homogeneous synthetic fibers such as *polyester*, rayon, acrylic, vinyl, *nylon*, Kevlar®, or similar synthetic materials. The second type of fibers is bi-component core and sheath fibers of materials, typically polyesters, having distinct melting points. The fibers 14 may be either straight or *crimped*, the crimped providing more loft and less density to the final product in comparison to the straight fibers. The fibers 14 may also be hollow. (Col. 5, lines 8-13) Chenoweth et al. further teaches that the bicomponent synthetic fibers 16 include a core of regular melt homopolymer polyester. The core 18 is fully surrounded by a sheath 20 of low melt temperature copolymer polyester that is at least about 100 degrees lower than the melting/bonding temperature of the core 18. (Col. 5, lines 18-30)

Chenoweth et al. fail to teach that the non-woven matrix may further comprise a plurality of micropsheres present in an amount between 5 – 20% by weight of the veil. Chenoweth et al. additionally fail to teach that the microspheres are polymeric expandable microspheres.

McGregor et al. is directed to an insulation material with improved loft characteristics. The preferred insulation comprises a multiple layered insulation with discrete fibers having energy expandable thermoplastic microspheres interspersed therein (Abstract). McGregor teaches that the introduction of expandable microspheres introduces little additional weight yet provides greater thermal insulative properties

(column 12, lines 15 – 25). In example 2, McGregor et al. teach the inclusion of 7.05 grams of microspheres per 39.87 gram substrate (18%).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate expandable thermoplastic microspheres in an amount of 18% by weight as suggested by McGregor et al. in the nonwoven matrix of Chenoweth et al. motivated by the desire to create a material with greater thermal insulative properties.

Although Chenoweth et al. does not explicitly teach the claimed melting point of the irregularly shaped fibers being significantly higher than the outer polymer annulus it is reasonable to presume that this is inherent to materials taught by Chenoweth et al. Support for said presumption is found in the use of like materials (i.e. among the materials disclosed for fibers 14 are aramids such as Kevlar® and Nomex®; these materials are heat and flame resistant and do not have a defined melting point, instead they decompose or carbonize at temperatures between 800°F -900°F. Evidence that fibers 14 do not melt while the sheath of the bicomponent fibers has melted is in Figures 3-4). The burden is upon Applicant to prove otherwise. In addition, the presently claimed property of having irregularly shaped fibers with a melting point significantly higher than the outer polymer annulus would obviously have been present one the Chenoweth et al. product is provided.

5. Claims 18 - 19 and 22 – 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chenoweth et al. (US 4,889,764) in view of Denton et al. (US 5,840,637).

Chenoweth et al. discloses the claimed invention except that it uses polyester in the sheath of the bicomponent fiber instead of polyethylene or polypropylene,

Denton et al. teach a fabric comprising bi-component yarns where the sheath component has a melting point lower than the core component (column 2, lines 35 – 45). Denton et al. teach suitable bi-component configurations such as co-polyester/polyethylene terephthalate, polyethylene/polyethylene terephthalate and polypropylene/polyethylene terephthalate (column 2, lines 40 – 50). Denton suggests that the use of these bi-component fibers are interchangeable thus making them art-recognized equivalents.

It would have been obvious to one of ordinary skill at the time the invention was made to substitute polyethylene or polypropylene for polyester motivated by the desire to use art equivalent structures based on cost and availability. It should be noted that the substitution of known equivalent structures involves only ordinary skill in the art. *In re Fout* 213 USPQ 532 (CCPA 1982); *In re Susi* 169 USPQ 423 (CCPA 1971); *In re Siebentritt* 152 USPQ 618 (CCPA 1967); *In re Ruff* 118 USPQ 343 (CCPA 1958).

Response to Arguments

6. Applicant's arguments filed February 24, 2007 have been fully considered but they are not persuasive.

Applicants argue that Chenoweth et al. is completely silent as to the melting point of the synthetic fibers 14 relative to that of the sheath 20 of the bicomponent fibers 16. It is noted that the reference teaches the importance that there be a significant difference between the melting point of the core 18 and the melting temperature of the sheath 20 and furthermore that the melting temperature of the sheath 20 be the lower of the two values. For example, the core could exhibit a melting temperature of 485°F and the sheath 20, 285°F. [Refer to Col. 5, lines 18-51] Then the reference discloses the formation of bonds 28 formed by the melting of the sheath. These bonds 28 are formed wherever any of the first, mineral fibers 12 or second, homogeneous fibers 14 contact or are closely adjacent the third, bi-component synthetic fibers 16. [Refer to Col. 6, lines 23-48; Figures 3-4] It is noted in the figures that fibers 12 and 14 are not melted and the bonds are formed by only the melting of the sheath of the bicomponent fibers. It is the Examiner's position that while the reference does not disclose a particular melting point for the synthetic fibers 14, the Figures are evidence that their melting point would be higher than the melting point than the sheath of the bicomponent fibers. It is further noted that among the materials disclosed for fibers 14 are aramids such as Kevlar® and Nomex®; these materials are heat and flame resistant and do not have a defined melting point, instead they decompose or carbonize at temperatures between 800°F - 900°F. Therefore, having irregularly shaped fibers having a melting point significantly higher than the outer polymer annulus would be recognized in the invention of Chenoweth et al.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer A. Chriss whose telephone number is 571-272-7783. The examiner can normally be reached on Monday - Friday 8 am - 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on 571 - 272-1478. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jennifer Chriss
May 7, 2007

ELIZABETH M. COLE
PRIMARY EXAMINER